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RAW SEQUENCE LISTING   DATE: 01/30/2002
PATENT APPLICATION: US/10/035,060   TIME: 18:05:01

Input Set : N:\Crf3\RULE60\10035060.raw.txt
Output Set: N:\CRF3\01302002\J035060.raw

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 1 <110> APPLICANT: Edwards, David
 2        Wong, Siu-Yin
 3        Herrnstadt, Corinna
 4        Wilcox, Edward
 5 <120> TITLE OF INVENTION: Process For Altering the Host Range Or Increasing The
 6        Toxicity Of
 7        Bacillus Thuringiensis Lepidoteran Toxins, and Recombinant DNA Sequences
 8        Therefor
 9 <130> FILE REFERENCE: M12C1FDF3D1
10 <140> CURRENT APPLICATION NUMBER: 10/035,060
11 <141> CURRENT FILING DATE: 2001-12-27
13 <150> PRIOR APPLICATION NUMBER: 09/405,788
14 <151> PRIOR FILING DATE: 1999-09-27
17 <150> PRIOR APPLICATION NUMBER: US 08/580,781
18 <151> PRIOR FILING DATE: 1995-12-29
19 <150> PRIOR APPLICATION NUMBER: US 08/420,615
20 <151> PRIOR FILING DATE: 1995-04-10
21 <150> PRIOR APPLICATION NUMBER: US 08/097,808
22 <151> PRIOR FILING DATE: 1993-07-27
23 <150> PRIOR APPLICATION NUMBER: US 07/980,128
24 <151> PRIOR FILING DATE: 1992-11-23
25 <150> PRIOR APPLICATION NUMBER: US 07/803,920
26 <151> PRIOR FILING DATE: 1991-12-06
27 <150> PRIOR APPLICATION NUMBER: US 07/356,599
28 <151> PRIOR FILING DATE: 1989-05-24
29 <150> PRIOR APPLICATION NUMBER: US 06/904,572
30 <151> PRIOR FILING DATE: 1986-09-05
31 <150> PRIOR APPLICATION NUMBER: US 06/808,129
32 <151> PRIOR FILING DATE: 1985-12-12
33 <160> NUMBER OF SEQ ID NOS: 9
34 <170> SOFTWARE: PatentIn version 3.0
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37 <211> LENGTH: 3537
38 <212> TYPE: DNA
39 <213> ORGANISM: Bacillus Thuringiensis
40 <400> SEQUENCE: 1
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43      tcgctaacgc aatttctttt gagtgaattt gttcccggtg ctggatttgt gttaggacta     180
44      gttgatataa tatggggaat ttttggtccc tctcaatggg acgcatttcc tgtacaaatt     240
45      gaacagttaa ttaaccaaag aatagaagaa ttcgctagga ccaagccat ttctagatta     300
46      gaaggactaa gcaatcttta tcaaatttac gcagaatctt ttagagagtg ggaagcagat     360
47      cctactaatc cagcattaag agaagagatg cgtattcaat tcaatgacat gaacagtgcc     420
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50    aggtgggggat ttgatgccgc gactatcaat agtcgttata atgatttaac taggcttatt   600
51    ggcaactata cagattatgc tgtgcgctgg tacaatacgg gattagagcg tgtatgggga   660
52    ccggattcta gagattgggt aaggtataat caatttagaa gagagctaac acttactgta   720
53    ttagatatcg ttgctctatt ctcaaattat gatagtcgaa ggtatccaat tcgaacagtt   780
54    tcccaattaa caagagaaat ttatacgaac ccagtattag aaaattttga tggtagtttt   840
55    cgtggaatgg ctcagagaat agaacagaat attaggcaac cacatcttat ggatatcctt   900
56    aatagtataa ccatttatac tgatgtgcat agaggcttta attattggtc agggcatcaa   960
57    ataacagctt ctcctgtagg gtttttcagga ccagaattcg cattcccttt atttgggaat  1020
58    gcggggaatg cagctccacc cgtacttgtc tcattaactg gtttgggggat ttttagaaca  1080
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61    atatatagac aaaggggtac agtcgattca ctagatgtaa taccgccaca ggataaatagt  1260
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93    ggatatggag aaggttgcgt aaccattcat gagatcgaga acaatacaga cgaactgaag  3180
94    tttagcaact gcgtagaaga ggaaatctat ccaaataaca cggtaacgtg taatgattat  3240
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103  <212> TYPE: PRT
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109                    20                  25                  30
110        Tyr Thr Pro Ile Asp Ile Ser Leu Ser Leu Thr Gln Phe Leu Leu Ser
111                    35                  40                  45
112        Glu Phe Val Pro Gly Ala Gly Phe Val Leu Gly Leu Val Asp Ile Ile
113                    50                  55                  60
114        Trp Gly Ile Phe Gly Pro Ser Gln Trp Asp Ala Phe Leu Val Gln Ile
115        65                  70                  75                  80
116        Glu Gln Leu Ile Asn Gln Arg Ile Glu Glu Phe Ala Arg Asn Gln Ala
117                    85                  90                  95
118        Ile Ser Arg Leu Glu Gly Leu Ser Asn Leu Tyr Gln Ile Tyr Ala Glu
119                    100                 105                 110
120        Ser Phe Arg Glu Trp Glu Ala Asp Pro Thr Asn Pro Ala Leu Arg Glu
121                    115                 120                 125
122        Glu Met Arg Ile Gln Phe Asn Asp Met Asn Ser Ala Leu Thr Thr Ala
123                    130                 135                 140
124        Ile Pro Leu Phe Ala Val Gln Asn Tyr Gln Val Pro Leu Leu Ser Val
125        145                 150                 155                 160
126        Tyr Val Gln Ala Ala Asn Leu His Leu Ser Val Leu Arg Asp Val Ser
127                    165                 170                 175
128        Val Phe Gly Gln Arg Trp Gly Phe Asp Ala Ala Thr Ile Asn Ser Arg
129                    180                 185                 190
130        Tyr Asn Asp Leu Thr Arg Leu Ile Gly Asn Tyr Thr Asp Tyr Ala Val
131                    195                 200                 205
132        Arg Trp Tyr Asn Thr Gly Leu Glu Arg Val Trp Gly Pro Asp Ser Arg
133        210                 215                 220
134        Asp Trp Val Arg Tyr Asn Gln Phe Arg Arg Glu Leu Thr Leu Thr Val
135        225                 230                 235                 240
136        Leu Asp Ile Val Ala Leu Phe Pro Asn Tyr Asp Ser Arg Arg Tyr Pro
137                    245                 250                 255
138        Ile Arg Thr Val Ser Gln Leu Thr Arg Glu Ile Tyr Thr Asn Pro Val
139                    260                 265                 270
140        Leu Glu Asn Phe Asp Gly Ser Phe Arg Gly Ser Ala Gln Gly Ile Glu
141                    275                 280                 285
142        Arg Ser Ile Arg Ser Pro His Leu Met Asp Ile Leu Asn Ser Ile Thr
143                    290                 295                 300
144        Ile Tyr Thr Asp Ala His Arg Gly Tyr Tyr Tyr Trp Ser Gly His Gln
145        305                 310                 315                 320
146        Ile Met Ala Ser Pro Val Gly Phe Ser Gly Pro Glu Phe Thr Phe Pro
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150     Gln Leu Gly Gln Gly Val Tyr Arg Thr Leu Ser Ser Thr Leu Tyr Arg
151                 355              360               365
152     Arg Pro Phe Asn Ile Gly Ile Asn Asn Gln Gln Leu Ser Val Leu Asp
153             370              375               380
154     Gly Thr Glu Phe Ala Tyr Gly Thr Ser Ser Asn Leu Pro Ser Ala Val
155     385              390               395               400
156     Tyr Arg Lys Ser Gly Thr Val Asp Ser Leu Asp Glu Ile Pro Pro Gln
157                 405              410               415
158     Asn Asn Asn Val Pro Pro Arg Gln Gly Phe Ser His Arg Leu Ser His
159                 420              425               430
160     Val Ser Met Phe Arg Ser Gly Phe Ser Asn Ser Ser Val Ser Ile Ile
161                 435              440               445
162     Arg Ala Pro Thr Phe Ser Trp Gln His Arg Ser Ala Glu Phe Asn Asn
163             450              455               460
164     Ile Ile Pro Ser Ser Gln Ile Thr Gln Ile Pro Leu Thr Lys Ser Thr
165     465              470               475               480
166     Asn Leu Gly Ser Gly Thr Ser Val Val Lys Gly Pro Gly Phe Thr Gly
167                 485              490               495
168     Gly Asp Ile Leu Arg Arg Thr Ser Pro Gly Gln Ile Ser Thr Leu Arg
169                 500              505               510
170     Val Asn Ile Thr Ala Pro Leu Ser Gln Arg Tyr Arg Val Arg Ile Arg
171                 515              520               525
172     Tyr Ala Ser Thr Thr Asn Leu Gln Phe His Thr Ser Ile Asp Gly Arg
173             530              535               540
174     Pro Ile Asn Gln Gly Asn Phe Ser Ala Thr Met Ser Ser Gly Ser Asn
175     545              550               555               560
176     Leu Gln Ser Gly Ser Phe Arg Thr Val Gly Phe Thr Thr Pro Phe Asn
177                 565              570               575
178     Phe Ser Asn Gly Ser Ser Val Phe Thr Leu Ser Ala His Val Phe Asn
179                 580              585               590
180     Ser Gly Asn Glu Val Tyr Ile Asp Arg Ile Glu Phe Val Pro Ala Glu
181                 595              600               605
182     Val Thr Phe Glu Ala Glu Tyr Asp Leu Glu Arg Ala Gln Lys Ala Val
183             610              615               620
184     Asn Glu Leu Phe Thr Ser Ser Asn Gln Ile Gly Leu Lys Thr Asp Val
185     625              630               635               640
186     Thr Asp Tyr His Ile Asp Gln Val Ser Asn Leu Val Glu Cys Leu Ser
187                 645              650               655
188     Asp Glu Phe Cys Leu Asp Glu Lys Gln Glu Leu Ser Glu Lys Val Lys
189                 660              665               670
190     His Ala Lys Arg Leu Ser Asp Glu Arg Asn Leu Leu Gln Asp Pro Asn
191             675              680               685
192     Phe Arg Gly Ile Asn Arg Gln Leu Asp Arg Gly Trp Arg Gly Ser Thr
193             690              695               700
194     Asp Ile Thr Ile Gln Gly Gly Asp Asp Val Phe Lys Glu Asn Tyr Val
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199				740					745					750		
200	Gly	Tyr	Ile	Glu	Asp	Ser	Gln	Asp	Leu	Glu	Ile	Tyr	Leu	Ile	Arg	Tyr
201			755					760					765			
202	Asn	Ala	Lys	His	Glu	Thr	Val	Asn	Val	Pro	Gly	Thr	Gly	Ser	Leu	Trp
203		770					775					780				
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205	785					790					795					800
206	Cys	Ala	Pro	His	Leu	Glu	Trp	Asn	Pro	Asp	Leu	Asp	Cys	Ser	Cys	Arg
207				805					810					815		
208	Asp	Gly	Glu	Lys	Cys	Ala	His	His	Ser	His	His	Phe	Ser	Leu	Asp	Ile
209				820					825					830		
210	Asp	Val	Gly	Cys	Thr	Asp	Leu	Asn	Glu	Asp	Leu	Gly	Val	Trp	Val	Ile
211			835					840					845			
212	Phe	Lys	Ile	Lys	Thr	Gln	Asp	Gly	His	Ala	Arg	Leu	Gly	Asn	Leu	Glu
213		850					855					860				
214	Phe	Leu	Glu	Glu	Lys	Pro	Leu	Val	Gly	Glu	Ala	Leu	Ala	Arg	Val	Lys
215	865					870					875					880
216	Arg	Ala	Glu	Lys	Lys	Trp	Arg	Asp	Lys	Arg	Glu	Lys	Leu	Glu	Trp	Glu
217				885					890					895		
218	Thr	Asn	Ile	Val	Tyr	Lys	Glu	Ala	Lys	Glu	Ser	Val	Asp	Ala	Leu	Phe
219				900					905					910		
220	Val	Asn	Ser	Gln	Tyr	Asp	Gln	Leu	Gln	Ala	Asp	Thr	Asn	Ile	Ala	Met
221			915					920					925			
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223		930					935					940				
224	Pro	Glu	Leu	Ser	Val	Ile	Pro	Gly	Val	Asn	Ala	Ala	Ile	Phe	Glu	Glu
225	945					950					955					960
226	Leu	Glu	Gly	Arg	Ile	Phe	Thr	Ala	Phe	Ser	Leu	Tyr	Asp	Ala	Arg	Asn
227				965					970					975		
228	Val	Ile	Lys	Asn	Gly	Asp	Phe	Asn	Asn	Gly	Leu	Ser	Cys	Trp	Asn	Val
229				980					985					990		
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231			995					1000					1005			
232	Val	Leu	Pro	Glu	Trp	Glu	Ala	Glu	Val	Ser	Gln	Glu	Val	Arg	Val	
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242	Glu	Tyr	Gly	Gly	Ala	Tyr	Thr	Ser	Arg	Asn	Arg	Gly	Tyr	Asn	Glu	
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